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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,962	08/16/2000	Wilhelm Frank	GR 97 P 2065 D	6118

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Lerner and Greenberg PA  
Post Office Box 2480  
Hollywood, FL 33022-2480

EXAMINER

DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 01/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/639,962

Applicant(s)

FRANK, ET AL.

Examiner

Thomas M. Dougherty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☒ Certified copies of the priority documents have been received in Application No. 09/499,853.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Miyoshi (US 5,239,223). Miyoshi shows (fig. 2) a piezoelectric (cl. 1) assembly, comprising: an elastic hollow body (5); a top cover plate (3) connected to said hollow body by one of welding (col. 4, ll. 30-34) and flanging, and a bottom cover plate (6) connected to said hollow body (5); and a piezoelectric actuator (1) having an extension direction, said actuator (1) inserted into said hollow body (5) in said extension direction between said cover plates (3, 6) for prestressing (col. 5, ll. 23-34 and col. 7, ll. 15-37).

Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Onishi (JP 55-134990). Onishi shows (figs. 2 and 3) a piezoelectric (see ABSTRACT) assembly comprising: an elastic hollow body (6); a top cover plate (4) connected to said hollow body by one of welding and flanging (6e), and a bottom cover plate (5) connected to said hollow body (6); and a piezoelectric actuator (1, 1') having an extension direction, said actuator (1, 1') inserted into said hollow body (6) in said extension direction between said cover plates (4, 5) for prestressing (see discussion in the translated CONSTITUTION section). Said said hollow body (6) has a given length, two butting edges (of 6a, 6b) and at least one connecting seam (see translated

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PURPOSE and CONSTITUTION) connecting said two butting edges to one another and extending entirely over said given length. Said hollow body (6) is made of at least one plate (6a, 6b) formed into said hollow body (6) and then fixed by at least one connecting seam.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) or Onishi (JP 55-134990) in view of Kaji (US 4,354,131). Given the invention of Miyoshi as noted above, or alternatively the invention of Onishi as noted above, they do not show their hollow body with two butting edges associated with one another and disposed in the longitudinal direction, wherein the butting edges are not connected to one another. Kaji shows (figs. 1 and 2) a piezoelectric (col. 3, ll. 37-39) assembly, comprising: an elastic hollow body (49). He further shows said hollow body (49) having a longitudinal direction and two butting edges associated with one another and disposed in said longitudinal direction, said butting edges not being connected to

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one another. He does not show a top cover plate connected to said hollow body, or a bottom cover plate connected to said hollow body. His piezoelectric actuator does not have an extension direction, said actuator is not inserted into said hollow body in said extension direction between said cover plates for prestressing. It would have been obvious to one having ordinary skill in the art to employ a hollow body such as is shown by Kaji in a device otherwise like Miyoshi's, or alternatively, like Onishi's, at the time of their inventions, in order to allow for electrical connections through the gap created by the two non-connected butting edges in the housing such as is taught by Kaji at column 4, lines 37-45.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) or Onishi (JP 55-134990) in view of Takahashi (US 4,943,004). Given the inventions of Miyoshi or Onishi as noted above, they do not show their hollow bodies with apertures which at least partially determine an elasticity of said hollow bodies. Takahashi shows (fig. 1) a piezoelectric (cl. 1) assembly, comprising: an elastic hollow body (32); a top cover plate (32a) connected to said hollow body (32), and a bottom cover plate (41) connected to said hollow body (32); and a piezoelectric actuator (33) having an extension direction, said actuator (33) inserted into said hollow body (32) in said extension direction between said cover plates (32a, 41) for prestressing (col. 5, ll. 9-13). His hollow body (32) has apertures (40) which at least partially determine an elasticity (col. 3, ll. 8-12) of said hollow body (32). It is not clear that Takahashi connects his top cover plate by one of welding and flanging. It would have been obvious to one having ordinary skill in the art to secure the hollow body of

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Takahashi to his cover plates by welding since this is a known method of securing components as is taught by Miyoshi, or by flanging, such as is taught by Onishi, and the still allows for the piezoelectric actuator to be caused to expand and/or contract within the housing. Additionally, welding and/or flanging are easy manufacturing methods involving minimal steps.


### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pagliarini ('390), Matsusaka ('213), Watanabe ('885) and Babitzka ('363) show piezoelectric stacks under compression within a housing. Boee (JP '20823) and Seyed-Boloforesh ('319) show welding of seams, circumferentially and axially, respectively. Takahashi (JP '83987), Siemens (DE '149), Winbow ('963), Schaefer ('089), Firatli ('862), Harris ('234), Minto ('010), Imai ('236), d'Agnolo ('799), Hase ('974 and '886) and Ngo ('810) show piezoelectric assemblies which have housing components with apertures.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

tmd  
tmd

December 27, 2001

  
THOMAS M. DOUGHERTY  
PRIMARY EXAMINER  
GROUP 2100  
28a